

Review

Patterns of deliberate self-burning in various parts of the world

A review

Véronique Laloë*

Médecins Sans Frontières, 8 rue Saint-Sabin, 75544 Paris Cedex 11, France

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Abstract

This paper reviews the literature on deliberate self-burning (DSB) and compares patterns in various countries. Fifty-five studies of deliberate self-harm or suicide by fire published in the last 20 years were reviewed. They reported on 3351 cases of DSB, including 2296 deaths. India had the highest absolute number of cases, the highest fatality rate, and the highest contribution of self-harm to burns admissions. The highest reported incidence was from Sri Lanka. Male victims generally predominated in Western countries, and females in the Middle East and the Indian sub-continent. Patients were grossly 10 years older in Europe than in Asia. The use and nature of fire accelerants, the possible roles of ethnicity, religion/faith and imitation are discussed. Three broad groups of victims were identified: psychiatric patients (Western and Middle-Eastern countries); those committing DSB for personal reasons (India, Sri Lanka, Papua-New Guinea, Zimbabwe); and those who are politically motivated (India, South Korea). Self-mutilators and self-immolators seem to be fairly distinct groups of people.

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Keywords: Self-inflicted burns; Suicide; Self-harm; Self-immolation; Self-burning**1. Introduction**

While in Western countries self-burning is relatively uncommon, in some parts of the world it is a major cause of extensive burns and consequently of burn deaths. This paper reviews the recent world literature on deliberate self-burning (DSB) to compare and contrast the patterns of such burns in various countries.

2. Method

The Medline database was used to search for articles which mentioned deliberate self-burning, either as a single topic or as one among other methods of suicide. Published papers on the epidemiology of burns were also searched for relevant topics of interest. The terms used for the search were: self-immolation, self-burning, self-incineration, suicidal burns and suicide by burning. Studies published in English in the last twenty years (1983–2002) were included in the tables if they reported at least five cases of self-burning.

When two studies came from the same hospital with period overlap, the study covering the larger period was selected. Papers reporting anecdotal cases or single episodes of group protest e.g. the Waco episode were excluded. Significant studies which focused on a single aspect of self-burning, even older than twenty years, were cited in the text but not included in the table. Size (total number of cases reported), annual number of cases, incidence of DSB, contribution of DSB to burns admissions in general, mortality rates and contribution of DSB to suicides in general are presented in Table 1.

In Table 2 published series of DSB and DSB deaths are grouped according to geographical area to be compared.

Table 3 compares the characteristics of patients in various studies in terms of gender, age and presence of a psychiatric disease. For easier comparison, forensic or medico-legal studies on suicides (reporting only fatalities) were excluded from this table. Alcoholism was not included as a psychiatric diagnosis as most studies did not seem to have included it.

The studies were also compared for burn characteristics such as total body surface area (TBSA) burned and accelerant used if any (Table 4). In this table too, only studies that included both survivors and non-survivors were examined, and forensic or medico-legal studies on suicides were excluded.

* Corresponding author. Present address: Point-Pedro Base Hospital, Point-Pedro, Sri Lanka. Tel.: +94-21-226-3224.

E-mail address: veronique.laloe@bigfoot.com (V. Laloë).

Table 1
Epidemiological characteristics in studies of deliberate self-burning (DSB)

Country, region or town	Type of study	Number of years and period	Number of DSB cases ^a	Annual number of DSB cases ^a	Population covered	DSB incidence (cases/year/100,000)	DSB % among all burns	Number of DSB deaths	DSB mortality rate	DSB as % of all suicides	Reference
Indian sub-continent											
India (New Delhi)	Clinical	8 (1993–2000)	747	93	No data	No data	6.7	668	89%	No data	[1]
India (Kanpur)	Forensic	1 (1985–1986)	43	43	No data	No data	No data	43	No data	No data	[18]
India (Madras)	Clinical	1 (1987–1988)	122	122	5 M	2.4	9	103	84%	No data	[16]
India (Mumbai)	Clinical	3 months (1994–1995)	20	80	No data	No data	40	No data	No data	No data	[3]
India (Solapur)	Clinical	9 months (1993–1994)	30	40	No data	No data	17.2	27	90%	No data	[7]
India (Varanasi)	Forensic	1 (1983)	20	20	No data	No data	No data	20	No data	No data	[17]
Sri Lanka (Batticaloa)	Clinical	2 (1999–2001)	87	43	0.5 M	5.8	25	61	70%	No data	[2]
Sri Lanka (Jaffna)	Medico-legal	10 (1980–1989)	17	1.7	0.5 M	0.3	No data	17	No data	3%	[49]
Middle East											
Egypt (Cairo)	Clinical	20 months (1995–1996)	23	15	4 M	0.4	17	17	74%	No data	[4]
Iran (Shiraz)	Clinical	4 (1994–1998)	296	74	3.8 M	1.9	14.5	231	78%	No data	[5]
Iran (Mazandaran)	Clinical	3 (1991–1993)	318	106	3.95 M	2.7	No data	242	79%	No data	[32]
Iran (Kurdistan)	Clinical	6 (1994–2000)	98	16.3	1.346 M	2 ^b	12.7 ^b	75	76.5%	No data	[13]
Israel (Beer-Sheva)	Clinical	21 (1965–1986)	22	1	No data	No data	0.37	17	77%	No data	[28]
Jordan (Farah)	Clinical	3 (1993–1995)	20	7	No data	No data	3.5	14	70%	No data	[50]
Jordan (Amman)	Forensic	9 (1973–1982)	43	4.7	No data	No data	No data	43	No data	No data	[51]
Libya (Benghazi)	Clinical	8 (1990–1997)	41	5	2 M	0.2	0.6	No data	No data	No data	[52]
Saudi Arabia (Dammam)	Medico-legal	10 (1986–1995)	10	1	2 M	No data	No data	10	No data	4.5%	[38]
Turkey (Ankara)	Clinical	9 (1979–1988)	16	1.7	No data	No data	1.97	8	50%	No data	[53]
Turkey (Istanbul)	Clinical	4 (1997–2001)	36	9	No data	No data	3.8	7	19%	No data	[23]
Europe											
Bulgaria (Sofia)	Clinical	12 (1983–1994)	89	7.4	No data	No data	2.2	31	34.8%	No data	[41]
Denmark (Aarhus)	Forensic	10 (1980–1989)	43	4.3	No data	No data	No data	43	No data	No data	[42]
Denmark (Copenhagen)	Clinical	1 (1982–1983)	6	6	0.49 M	1.2	8	No data	No data	No data	[43]
Germany (Berlin)	Forensic	10 (1990–2000)	46	4.6	No data	No data	No data	46	No data	0.76%	[10]
Greece (Athens)	Clinical	2.5 (1987–1989)	16	6	No data	No data	3.9	9	56%	No data	[11]
Ireland (Cork)	Clinical	2 (1994–1995)	12	6	1 M	0.6	4.6	3	33%	No data	[44]
Italy (Parma)	Clinical	4 (1988–1992)	8	2	No data	No data	1.8	5	75%	No data	[45]
Italy (Rome)	Medico-legal	40 (1947–1997)	34	0.8	No data	No data	No data	34	No data	No data	[24]
Italy (Verona)	Clinical	10 (1984–1993)	31	3	No data	No data	4.4	12	39%	No data	[46]
The Netherlands (Beverwijk)	Clinical	16 (1981–1995)	185	13.6	No data	No data	13	52	28%	No data	[29]
The Netherlands (Groningen)	Clinical	9 (1979–1987)	57	8.5	No data	No data	14 ^c	12	21%	No data	[47]
Norway (Oslo)	Forensic	10 (1984–1993)	22	2.2	No data	No data	No data	22	No data	No data	[48]
Spain (Barcelona)	Clinical	9 (1983–1991)	67	7.4	No data	No data	2	20	30%	No data	[12]
UK (West-Yorkshire)	Clinical	10 (1983–1993)	20	2	No data	No data	8.5	9 ^d	64% ^d	No data	[36]
UK (Middlesex)	Clinical	5 (1979–1983)	42	8	No data	No data	6.5	20	48%	No data	[37]
UK (England and Wales)	National statistics	1 (1991)	51	51	No data	No data	No data	51	No data	1.5%	[35]
UK (Wales)	Clinical	12 (1979–1991)	51	4	No data	No data	1.1	12	23.5%	No data	[25]
Far East Asia											
Hong-Kong	Clinical	7 (1993–1999)	11	1.5	No data	No data	1	4	36.4%	No data	[54]
Korea (Seoul)	Clinical	7 (1980–1986)	38	5.4	No data	No data	No data	30	78.9%	No data	[22]
North America											
Canada (Ontario)	Forensic	2 (1986–1988)	32	16	9 M	0.17	No data	32	No data	1%	[55]
USA (California)	Clinical	1 (?)	8	8	No data	No data	No data	No data	No data	No data	[56]
USA (Florida)	Forensic	8 (1977–1984)	24	3	1.6 M	No data	No data	24	No data	0.96%	[57]
USA (Florida)	Clinical	6 (1979–1984)	33	5.5	1.75 M	1.8	1.4	19	57%	No data	[39]
USA (Florida)	Clinical	10 (1980–1989)	15	1.5	No data	No data	0.7	8	53%	No data	[58]
USA (Georgia)	Clinical	3 (1988–1991)	17	5.6	No data	No data	1.5	2	12%	No data	[59]
USA (Pennsylvania)	Clinical	18 months (1994–1995)	7	5	No data	No data	3.9	1	14%	No data	[6]

USA (Pennsylvania)	Clinical	5 (1978–1982)	11	2.2	No data	No data	1.2	5	45%	No data	[60]
USA (Denver)	Clinical	3 (1978–1981)	15	5	No data	No data	9	5	33%	No data	[61]
USA (Pittsburgh)	Clinical	9 (1987–1995)	11	1	No data	No data	0.9	3	27%	No data	[62]
USA (Ohio)	Clinical	18 (1978–1995)	36	2	No data	No data	1	10	29%	No data	[63]
USA (Utah)	Clinical	11 (1980–1991)	31	2.8	No data	No data	No data	3	9.6%	No data	[26]
South America											
Brazil (Sao Paulo)	Clinical	11 (1984–1995)	82	7.4	1 M	0.7	7.6	45	55%	No data	[30]
Australasia											
Australia (Brisbane)	Clinical	11 (1986–1996)	65	5.9	No data	No data	2.9	14	21.5%	No data	[27]
Papua New Guinea (Port-Moresby)	Clinical	6 months (1990)	10	20	No data	No data	No data	6	60%	No data	[14]
Sub-Saharan Africa											
Zimbabwe (Harare)	Clinical	3 (1995–1998)	47	15.6	No data	No data	22	32	68%	11%	[8]
South Africa (Durban)	Forensic	5 (1996–2000)	69	13.8	No data	No data	No data	69	No data	9.9%	[9]

^a For forensic studies, number of deaths.

^b 13 years and older.

^c Older than 16 years.

^d 70% of the patients were of Asian origin.

Table 2

Compared numbers of published cases of deliberate self-burning in various geographical areas

	Number of published series	Deliberate self-burning	% of published DSB	DSB deaths	% of published DSB deaths
Indian sub-continent	8	1086	32.4	939	40.9
Middle East	11	923	27.5	664	28.9
Europe	17	780	23.3	381	16.5
Far East Asia	2	49	1.5	34	1.5
North America	12	240	7.2	112	4.9
Sub-Saharan Africa	2	116	3.5	101	4.4
South America	1	82	2.4	45	2
Australasia	2	75	2.2	20	0.9
Total	55	3351	100	2296	100

In this paper, the term ‘deliberate self-burning’ does not imply a specific intention or outcome and therefore covers a range of burn injuries inflicted by self which includes, but is not restricted to, suicide by burning.

3. Results

A total of 55 studies met the criteria. They reported on between five (set as the minimum number) and 747 cases of DSB each, with a total of 3351 cases for the 56 studies. This included 2296 deaths (burn suicides). Forty-two studies were hospital-based reports on patients admitted with self-inflicted burns, whether they turned out to be fatal or not. Thirteen studies were forensic, medico-legal studies from coroner’s records, or from national statistics, looking only at fatal cases (suicides). Thirty-six studies were retrospective and nine were prospective. It was not clear from ten papers whether the study was retrospective or prospective. Twenty-four articles were written by surgeons alone, and 11 by psychiatrists alone. Forensic doctors or pathologists were the sole authors in 11 cases. Surgeons and psychiatrists were co-authors in five cases, surgeons and forensic doctors in two cases. The authors’ background was unclear in two cases. The highest absolute number of DSB in a single study (747) was reported from India in an 8-year period [1]. The highest incidence of DSB was reported from Sri Lanka with 5.8 cases per year per 100,000 inhabitants [2]. There might have been higher incidences elsewhere however, but this could not be calculated from the data available, as the population size was not mentioned. The highest rates of DSB as a cause of burn admission were reported from Mumbai (India, 40%) [3], Batticaloa (Sri Lanka, 25%) [2], Cairo (Egypt, 17%) [4] and Shiraz (Iran, 14.5%) [5]. Thirty-eight studies reported both the total number of DSB and the number of deaths following DSB, allowing calculation of mortality rates. These 38 studies put together had a total of 2822 DSB cases and 1842 deaths, yielding an overall average mortality rate of 65%, ranging from 14% (USA) [6] to 90% (Solapur, India) [7]. Only nine studies indicated the frequency of suicide by burning compared with other methods of suicide. In Harare (Zimbabwe) DSB contributed to 11% of the

suicides and came third after organo-phosphate poisoning and anti-malarial poisoning [8]. In Durban (South Africa), 9.9% of all suicides was the result of self-immolation [9]. In other studies reporting this rate, self-burning was much less frequently used as a method of suicide, and was used in only 0.76% of all suicides in Berlin, Germany [10].

3.1. Patient’s characteristics (Table 3)

Excluding Greece [11], there was a male predominance among people committing DSB in European countries and in far-east Asia, with a male:female ratio as high as 2.5 in Spain [12]. In contrast a female predominance was noted in most Middle East countries and in the Indian sub-continent, with a ratio as low as 0.1 in Iranian Kurdistan [13]. In the USA, no gender clearly dominated.

Median age (or most common age group according to the way it was expressed in the paper) showed that patients deliberately burning themselves were in their thirties in Europe and in their twenties in Asia.

3.2. Reasons for committing DSB

When mentioned, the presence of a psychiatric illness among victims of DSB appeared to be common in European, North American and Middle-Eastern countries (when Asian immigrants were excluded), reaching 96% in Egypt [4]. Depression was the most frequently mentioned psychiatric diagnosis, followed by schizophrenia. Conversely, prevalence of a psychiatric disorder in the DSB population appeared to be remarkably low in Sri Lanka (3% in Batticaloa) [2] and Papua-New Guinea (10%) [14].

Stoddard and coworkers [15] have specifically studied the psychiatric aspects of suicide attempts by self-immolation among American adolescents and found ‘long standing psychopathology, fundamentalistic religious beliefs, and a family history of mental disorder’. Interpersonal problems and marital disharmony seems to be the main reason for self-burning in the Indian sub-continent [1–3,7,16–18], in Papua-New Guinea [14] and Zimbabwe [8].

Table 3

Patients characteristics in clinical studies of deliberate self-burning: gender, age and presence of psychiatric illness

Country, region or town	Male:female ratio	Age (years)	% of patients with psychiatric illness	Reference
Indian sub-continent				
India (New Delhi)	0.46	16–35 (most common)	No data	[1]
India (Madras)	0.3	No data	No data	[16]
India (Solapur)	0.67	20–40 (most common)	No data	[7]
Sri Lanka (Batticaloa)	0.26	Mean 27	3	[2]
Middle East				
Egypt (Cairo)	0.09	Mean 23	96	[4]
Iran (Kurdistan)	0.1	16–25 most common	No data	[13]
Iran (Shiraz)	6.4	15–29 most common	No data	[5]
Iran (Mazandaran)	0.2	Mean 27	95	[32]
Israel (Beer-Sheva)	0.3	Mean 34	50	[28]
Jordan (Farah)	0.25	Mean 28	40	[50]
Libya (Benghazi)	0.64	No data	46	[52]
Turkey (Ankara)	1.6	Mean 32	31	[53]
Turkey (Istambul)	3	Suicide attempt 32; non-suicide 27 (mean)	83	[23]
Europe				
Bulgaria (Sofia)	1.2	Most frequent 30–39	32	[41]
Greece (Athens)	0.2	Mean 45	37	[11]
Ireland (Cork)	0.7	Mean 41	83	[44]
Italy (Parma)	1.6	Mean 44	87.5	[45]
Italy (Verona)	1	Mean 38	High	[46]
The Netherlands (Groningen)	1	Most frequent 20–39	Most patients	[47]
The Netherlands (Beverwijk)	0.9	Mean 37	Psychotic disorder 31.5; mood disorder 24; personality disorder 9	[29]
Spain (Barcelona)	2.5	Mean 38	75	[12]
UK (West-Yorkshire) ^a	0.2	Mean 29	0	[36]
UK (Middlesex)	0.9	Mean 36	76	[37]
UK (Wales)	1	Self-mutilators range 18–49; suicidal intent range 17–76	73	[25]
Far-East Asia				
Hong Kong	1.75	Mean 35	No data	[54]
Korea (Seoul)	1.9	20–29 most common	21	[22]
North America				
USA (California)	0.3	No data	(Substance abuse)	[56]
USA (Pennsylvania)	2.5	Mean 33	100	[6]
USA (Pennsylvania)	0.8	Mean 37	91	[60]
USA (Florida)	0.3	Mean 49.5	50	[39]
USA (Florida)	1.5	Mean 31	60	[58]
USA (Denver)	0.6	Mean 33	80	[61]
USA (Georgia)	0.7	Mean 38	53–100 ^a	[59]
USA (Pittsburgh)	1.75	Mean 35.7	91	[62]
USA (Ohio)	1.6	30–39 most common	65	[63]
USA (Utah)	0.5	Self-mutilators 29; suicide attempt 39	58	[26]
South America				
Brazil (Sao Paulo)	0.4	21–30 most common	21.5	[30]
Australasia				
Australia (Brisbane)	2	No data	Common	[27]
Papua New Guinea (Port-Moresby)	0	Mean 25	10	[14]
Sub-Saharan Africa				
Zimbabwe (Harare)	0.1	Median 25	6.4	[8]

^a Includes substance abuse.

Political protest is a less frequent motive. According to Geller, the suicide of the Vietnamese Buddhist monk Thich Quang Duc in 1963 was a benchmark in a new form of political protest [19]. Another prominent case was that of Jan

Palack, who set himself on fire in 1969 to protest against the entry of the Warsaw Pact army in Czechoslovakia; this was also followed by similar cases. In India, Singh and coworkers [20] studied a group of 22 students who had protested

Table 4
Burn characteristics in studies of deliberate self-burning

Country, region or town	Most common accelerant used	Total body surface area burned (%)	Reference
Indian sub-continent			
India (New Delhi)	Kerosene	No data	[1]
India (Mumbai)	No data	45	[3]
India (Solapur)	Kerosene	(Extensive)	[7]
Sri Lanka (Batticaloa)	Kerosene	Median 48	[2]
Middle East			
Egypt (Cairo)	Kerosene	Mean 45	[4]
Iran (Mazandaran)	No data	63	[32]
Israel (Beer-Sheva)	Petrol	Mean 79	[28]
Jordan (Farah)	Kerosene	Mean 48	[50]
Turkey (Ankara)	Petrol	Mean 54	[53]
Turkey (Istanbul)	Petrol	Suicide attempt 64; non-suicide 32	[23]
Europe			
Bulgaria (Sofia)	Benzine	Most common 21–30	[41]
Denmark (Copenhagen)	Petrol	No data	[43]
Greece (Athens)	No data	68 (over 50% TBSA)	[11]
Ireland (Cork)	Petrol	Mean 30	[44]
Italy (Parma)	No data	10–100	[45]
Italy (Verona)	Domestic gas	Mean 41	[46]
The Netherlands (Beverwijk)	No data	Mean 25	[29]
The Netherlands (Groningen)	No data	No data	[47]
Spain (Barcelona)	No data	No data	[12]
UK (West-Yorkshire) ^a	Kerosene	Mean 44	[36]
UK (Middlesex)	Petrol	Mean 44	[37]
UK (Wales)	Unspecified flammable liquids	Self-mutilators 1.4; suicide attempters 22	[25]
Far-East Asia			
Hong Kong	No data	Mean 50	[54]
Korea (Seoul)	Kerosene	No data	[22]
North America			
USA (California)	No data	Mean 25	[56]
USA (Florida)	Alcohol	Mean 49.5	[39]
USA (Florida)	No data	Mean 67	[58]
USA (Georgia)	Petrol	29.5	[59]
USA (Pennsylvania)	Petrol	Mean 50	[6]
USA (Pennsylvania)	Petrol	Mean 43	[60]
USA (Denver)	Petrol	No data	[61]
USA (Pittsburgh)	Petrol	26	[62]
USA (Utah)	No data	DSH 1.6; suicide attempt 35	[26]
South America			
Brazil (Sao Paulo)	Methyl alcohol	Mean 52	[30]
Australasia			
Australia (Brisbane)	Petrol	Mean 31	[27]
Papua New Guinea (Port-Moresby)	Kerosene	Mean 56	[14]
Sub-Saharan Africa			
Zimbabwe (Harare)	Kerosene	Median 60	[8]

^a 70% of the patients were of Asian origin.

against the Government by committing self-immolation. Crosby and Joong-oh-Rhee [21] studied suicide by fire for political reasons between 1790 and 1972 in newspaper articles in the UK and the USA and concluded that it was a recent phenomenon: 71% of the cases had occurred during the 1963–1972 decade. More recently, political reasons motivated 13% of DSB cases in South Korea [22]. This motive was also mentioned in Turkey [23] and in a more anecdotal way in Italy [24].

3.3. Intent

Some authors rightly highlighted the many differences between those who attempted suicide by burning and those who burned themselves without suicidal intent [23,25–27]. And there is indeed a great difference between the self-mutilator repeatedly inflicting a 2% TBSA burn on himself with an iron and the self-immolator setting herself on fire. They differ in their intention, their motives, the use

of fire accelerant, and consequently the extent and outcome of their burns. In Sri Lanka, however, it was argued that the ignorance of the very serious or even fatal consequences of DSB led to a significant proportion of DSB occurrences ending up in unintended death [2].

3.4. Burn characteristics (Table 4)

The use and nature of fire accelerants varied according to availability in various parts of the world. Kerosene and petrol (gasoline) were the most frequently mentioned substances.

When reported, the burn sizes were usually extensive. Mean TBSA burned reached 79% in Israel [28] and 60% in Zimbabwe [8]. But among self-mutilators in the UK [25] and the USA [26] it was less than 2%.

4. Discussion

Geller [19] in his literature review covered 30 years (1965–1994) and found 27 studies and only 582 cases. The present 20-year review (1982–2002) gathered 55 studies with 3351 cases. Whether this reflects an increase in the frequency of the phenomenon or merely an increased interest and more reporting and publishing is not known. It should be noted that Geller did not include studies published in developing countries, which, as we shall see, provide the bulk of DSB. Seven centres from three different countries, all from the Asian continent (India, Sri Lanka and Iran), each saw over 40 cases of DSB per year. Together they account for 2184 cases or nearly half of the worldwide-published cases. Zimbabwe and South Africa are the only two countries of Sub-Saharan Africa that published figures [8,9]. Papua-New Guinea had relatively high rates (20 cases per year per centre) but the study was short (6 months) and it is not known whether the trend was maintained or not [14]. In contrast, DSB remains a rare phenomenon in Europe, with only the Netherlands standing out with relatively high annual numbers (13.6 per year per centre) [29]. Australia had 5.9 cases per year in one centre. [27]. In South America, only Brazil published figures, which were in the low range with 7.4 cases per year in one centre [30]. In the USA, no centre that published figures had seen more than 6 cases of DSB in a year.

In what do the victims differ from country to country? What could be the reasons for widely different incidences of DSB (nine times in Sri Lanka what it is in Ireland) and different mortality rates?

4.1. Differences in age and gender

In Asia victims were grossly about 10 years younger than in Europe and they were in vast majority females. This may be related to the major changes happening at this age, the transition from youth to adulthood and youth to marriage

with all the demands this places on a young girl who is very often ill-prepared for it [31].

4.2. Role of religion/faith

This is difficult to separate from the role of culture or even ethnicity; Buddhists and Hindus are intuitively thought to have a higher propensity towards self-sacrifice by fire. However, Iran, a Muslim country also had high rates [5,13,32] and in Sri Lanka DSB was just as frequent among Muslim and non-Muslim patients [2]. Topp [33] has studied and compared the symbolic significance of fire throughout history and in areas of various religious influences: in Greek mythology and among the ancient Hebrews, the Christians, Hindus and Buddhists. Grossoehme and Springer [34] specifically studied mental images of the Divinity in a population of American self-injurious burn patients and found that some patients imagined God as a Legalist, others imagined Him as an Agent of Change, and others still viewed God as being absent.

4.3. Role of ethnicity

This is best studied among immigrant populations and has been investigated in the UK by several authors. Prosser [35] in England and Wales found that 30% of the females committing suicide by self-burning and 7% of the males were Asian. Sheth et al. [36] also studied immigrant populations in the UK and noted that 70% of the female patients were of Asian origin. Davidson found that Asians formed the second largest group after patients from the British Isles [37]. Soni Raleigh and Balarajan [31] wrote that burning was a common form of suicide among Indian immigrants living in the UK, particularly among young Indian women. The last author rightly pointed out that Indian immigrant communities maintain their cultural identity and traditions even after generations of overseas residence. The over-representation of Indians was also noted in South Africa [9].

Elfawal [38], studying cultural influence on the incidence and choice of method of suicide in Saudi Arabia also found that Asians showed more tendencies toward jumping from heights and self-immolation.

In California, Hammond and coworkers [39] noted that a large percentage of patients with DSB were Latin women with Cuban-American backgrounds.

4.4. Role of imitation

A copycat phenomenon (imitation of a method frequently used) may play a role in countries with high rates of DSB (India, Sri Lanka, Iran); as there are more cases, there are also more people hearing about it and possibly imitating the method. Ashton and Dorman [40] even described an 'epidemic' of suicide by burning in England and Wales during a one year-period.

4.5. Use of fire accelerants

It seems reasonable to think that the use of accelerants such as kerosene and petrol points at a high level of intention of inflicting severe burns on oneself or dying.

4.6. Fatality rates

Several factors may influence the outcome of DSB: the physical characteristics of the victim, the intention of dying (leading to the practise of dousing oneself with a fire accelerant), the burn sizes as well as the levels of facilities of the hospitals caring for these patients. A high level of burn care services is required to appropriately treat such massive burns and obviously India is not on a par with the United States in this regard. For those not dying immediately, self-injurious patients who retain a strong self-destruction intent may not cooperate well with the health care givers [2].

4.7. Reasons (motives)

Three broad groups seem to emerge: those burning themselves because of a psychiatric illness (Western and Middle East); those doing so for personal reasons (India, Sri Lanka, Papua-New Guinea, Zimbabwe); and those doing so for political reasons (India, South Korea).

5. Conclusion

Both the significance and interpretation of self-burning as a method of self-harm or suicide vary according to the country or part of the world and are probably accounted for by the cultural, religious and psychosocial differences. Aspects such as the reasons for committing DSB, sex ratio, age and use of accelerant also vary widely.

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